

Patent claims

1. A hip prosthesis comprising a shaft (1) which is  
5 to be anchored in the medullary canal of the femur  
and whose distal portion (7), which is to be  
anchored in the diaphysis, has a core cross-  
section (12) which tapers toward the end and  
which, at least on the lateral side (19) and the  
10 medial side (20), has longitudinal ribs (16) whose  
height increases from proximal to distal.
2. The prosthesis as claimed in claim 1,  
15 characterized in that the number of ribs (16)  
assigned to a core area lying on the lateral side  
(19) or medial side (20) is at least three in each  
case.
3. The prosthesis as claimed in claim 1 or 2,  
20 characterized in that longitudinal ribs (16) are  
also provided on the front face and rear face of  
the distal portion.
4. The prosthesis as claimed in one of claims 1  
25 through 3, characterized in that the tapering of  
the core cross-section along a length of at least  
4 cm is on average at least  $8 \text{ mm}^2/\text{cm}$  of length,  
preferably over  $10 \text{ mm}^2/\text{cm}$  of length.
- 30 5. The prosthesis as claimed in one of claims 1  
through 4, characterized in that the reduction in  
the cross-sectional dimension in the LM direction  
of the distal shaft portion (7) along a length of  
at least 4 cm is on average at least  $0.5 \text{ mm}/\text{cm}$  of  
35 length, preferably more than  $0.8 \text{ mm}/\text{cm}$  of length.
6. The prosthesis as claimed in one of claims 1  
through 4, characterized in that the rib height is  
on average under 2 mm.

7. The prosthesis as claimed in claim 6, characterized in that the rib height increases from the proximal end (9) of the distal portion (7) to its distal end (11) from less than 0.5 mm to 0.5 to 1.5 mm.  
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8. The prosthesis as claimed in one of claims 1 through 7, characterized in that the average cross-sectional extent of the ribs in the circumferential direction is not greater than 30% of their center distance.  
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9. The prosthesis as claimed in one of claims 1 through 8, characterized in that the flanks of the ribs (16) enclose an angle of not more than 30° with the radius through the rib center.  
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10. The prosthesis as claimed in claim 9, characterized in that the flanks of the ribs (16) are not undercut with respect to a demolding direction (18).  
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11. The prosthesis as claimed in one of claims 1 through 10, characterized in that the shaft cross-section at the proximal end (9) of the distal, ribbed shaft portion (7) is oval, with an axis ratio of at least 1:2.  
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12. The prosthesis as claimed in claim 11, characterized in that the shaft core cross-section at the distal end (11) of the shaft (1) is circular.  
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13. The prosthesis as claimed in one of claims 1 through 10, characterized in that the shaft core cross-section at the proximal end (9) is substantially rectangular, with an axis ratio of at least 1:4.  
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14. The prosthesis as claimed in claim 13,  
characterized in that the shaft core cross-section  
at a distance of 1 cm from the distal end (11) is  
5 substantially rectangular, with an axis ratio of  
at least 1:5.
15. The prosthesis as claimed in claim 13 or 14,  
characterized in that the shaft core cross-  
10 section, at least near its distal end, has a rib  
(21) on each of its two lateral edges.
16. The prosthesis as claimed in claim 15,  
characterized in that the boundary of the shaft  
15 core cross-section between the two ribs (21)  
located on the lateral edges does not protrude  
further laterally than these.
17. The prosthesis as claimed in claim 16,  
20 characterized in that a rib provided between the  
two ribs (21) located on the lateral edges  
protrudes by not more than 2 mm further laterally  
than these.
18. The prosthesis as claimed in claim 15,  
25 characterized in that a rib is also provided on  
each of the medial edges.
19. The prosthesis as claimed in claim 18,  
30 characterized in that the boundary of the shaft  
core cross-section between a rib arranged on a  
lateral edge and a rib arranged on a medial edge  
protrudes not more than 1 mm in the ventral or  
dorsal direction.
20. The prosthesis as claimed in claim 19,  
35 characterized in that a rib provided between a rib  
(21) provided on the lateral edge and a rib  
located on the medial edge protrudes not more than

2 mm in the ventral or dorsal direction than the ribs arranged on said edges.

21. The prosthesis as claimed in one of claims 1  
5 through 20, characterized in that the ribs are made rough.